

Supporting information

for

Assembly process and source tracking of microbial communities in sediments of Dongting Lake

Wenfei Liao^{a,c}, Di Tong^b, Xiaodong Nie^{a*}, Yaojun Liu^a, Fengwei Ran^a, Shanshan Liao^c, Jia Chen^c, Aoqi Zeng^c, Zhongwu Li^{a*,c}

^a School of geographical sciences, Hunan Normal University, Changsha 410081, Hunan, P.R. China.

^b Institute of Soil and Water Resources and Environmental Science, College of Environmental and Resource Sciences, Zhejiang University, Hangzhou 310058, China.

^c College of Environmental Science and Engineering, Hunan University and Key Laboratory of Environmental Biology and Pollution Control (Hunan University), Ministry of Education, Changsha 410082, P.R. China.

*Corresponding author: Xiaodong Nie (nxd@hunnu.edu.cn) and Zhongwu Li (lizw@hnu.edu.cn)

Fax No.: 0731-88640078

Telephone: 13739098310

Total Number of Pages:9

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Table S1 Physicochemical properties of the different land types (mean value \pm standard deviation). C: N stoichiometry was calculated using the total C and total N test value. P, paddy field; G, grassland; U, urban; F, forest; D, dryland; NBT, Niubitan

Points	pH	C:N	Dissolved organic C (g/kg)	Total N (g/kg)	Total S (g/kg)	Total C (g/kg)	Sand (%)	Silt (%)	Clay (%)	Water content (%)
P	5.35	8.30	0.35	1.97	0.73	16.21	38.60	34.45	26.96	27.76
	(0.14)	(0.26)	(0.03)	(0.16)	(0.03)	(1.16)	(2.25)	(1.67)	(0.77)	(2.52)
G	5.70	8.98	0.27	1.13	0.56	10.21	51.73	25.30	22.98	22.54
	(0.24)	(0.50)	(0.01)	(0.21)	(0.05)	(2.03)	(8.14)	(3.91)	(4.25)	(1.31)
U	6.09	12.95	0.23	1.16	1.71	15.14	47.84	27.48	24.68	15.30
	(0.31)	(2.92)	(0.04)	(0.28)	(0.49)	(4.37)	(3.61)	(1.94)	(1.90)	(1.10)
F	4.51	9.53	0.37	1.47	0.47	15.14	47.74	25.64	26.62	17.38
	(0.19)	(0.51)	(0.03)	(0.33)	(0.05)	(4.17)	(4.65)	(1.61)	(3.16)	(1.47)
D	5.92	14.89	0.27	1.69	3.85	23.98	33.44	32.63	33.93	19.68
	(0.15)	(1.21)	(0.03)	(0.21)	(0.68)	(1.87)	(3.70)	(3.19)	(1.29)	(1.66)
NBT	7.42	20.40	0.14	1.67	17.95	33.80	55.56	26.52	17.93	10.92
	(0.05)	(1.14)	(0.02)	(0.12)	(3.25)	(2.95)	(3.63)	(1.55)	(2.08)	(0.19)

Table S2 ANOSIM analyses of bacteria beta-diversities among erosion areas of Yuanjiang basin. D, dryland; F, forest; G, grassland; P, paddy field; U, urban

		<i>ANOSIM</i>				
Bacteria		<i>R(P)</i>				
	—	D	F	G	P	U
D	— —		0.7119 (0.0003)	0.2476 (0.0061)	0.7298 (0.0001)	0.1514 (0.0352)
F	0.7119 (0.0003)	— —		0.2685 (0.0135)	0.8050 (0.0001)	0.3728 (0.0041)
G	0.2476 (0.0061)	0.2685 (0.0135)	— —		0.3512 (0.0024)	0.0864 (0.1232)
P	0.7298 (0.0001)	0.8052 (0.0001)	0.3512 (0.0024)	— —		0.5000 (0.0001)
U	0.1514 (0.0352)	0.3728 (0.0041)	0.0864 (0.1232)	0.5000 (0.0001)	— —	

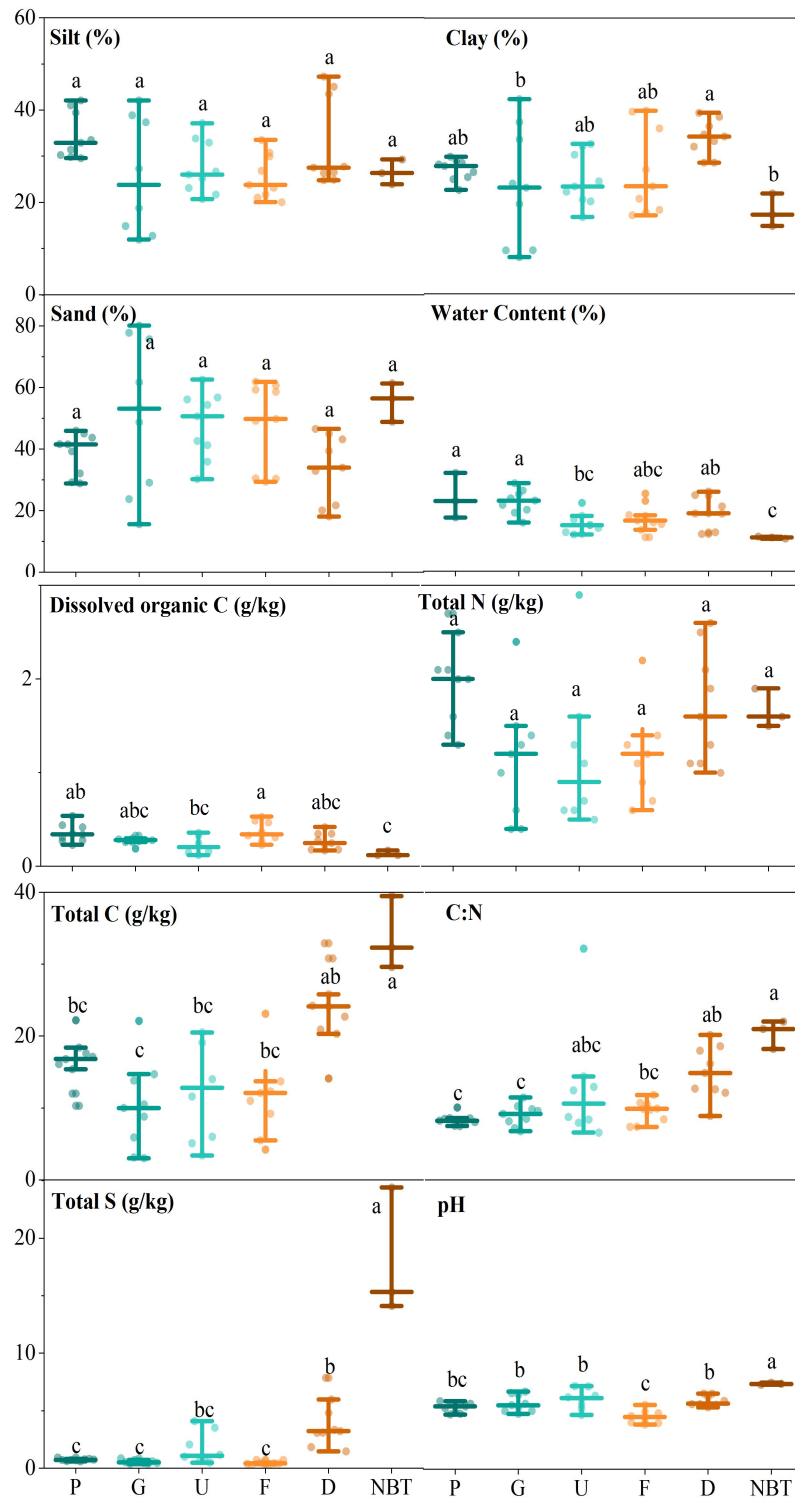


Figure S1 Variations of soil properties across six sites. Different letters within a group indicate significant differences at the $P < 0.05$ level. P, paddy field; G, grassland; U, urban; F, forest; D, dryland; NBT, Niubitan

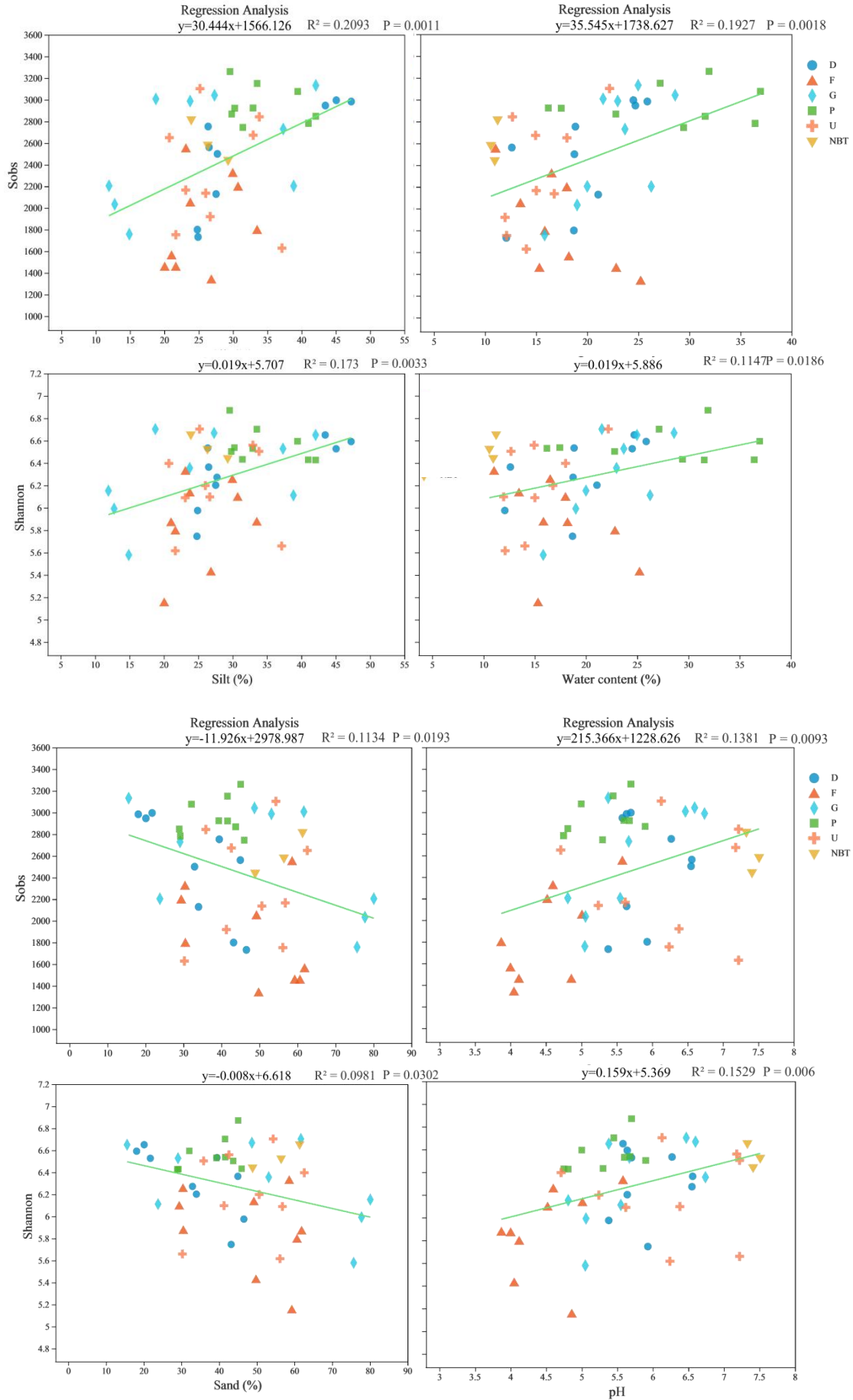


Figure S2 Correlation between the soil/sediment bacteria' s alpha diversity (shannon and sobs), and the environmental variables in Yuanjiang basin. Linear regression analysis is used to determine the relationship between variables. D, dryland; F, forest; G, grassland; P, paddy field; U, urban; NBT, Niubitan

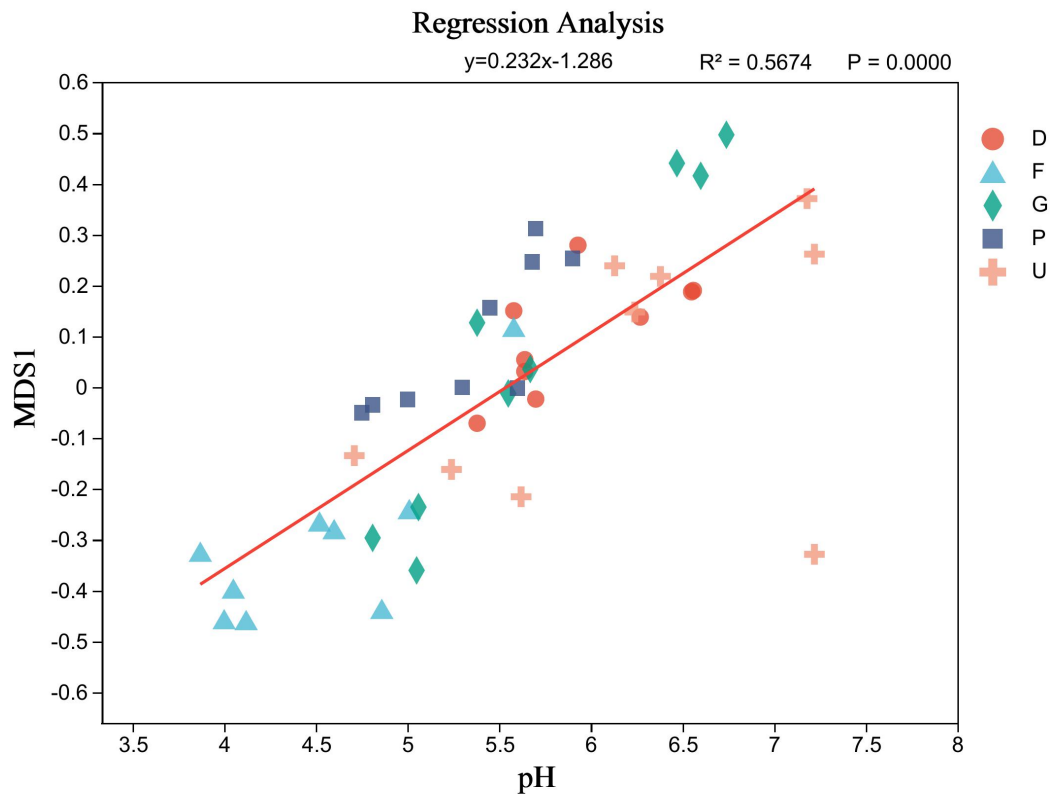
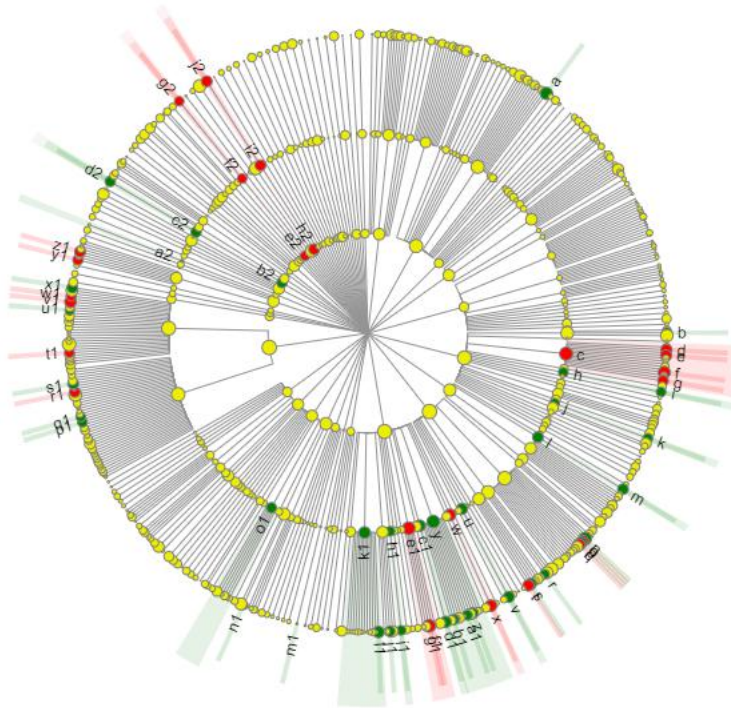


Figure S3 Correlation between the soil/sediment bacteria's beta diversity, and the environmental variables in Yuanjiang basin. Linear regression analysis is used to determine the relationship between variables. TS, total S; TC, total C; D, dryland; F, forest; G, grassland; P, paddy field; U, urban; NBT, Niubitan

Cladogram

■ source
■ sink



- a : o__Exiguobacteriales
- b : o__Subgroup_17
- c : o__Aoidobacteriales
- d : o__Sollibacteriales
- e : o__Subgroup_2
- f : o__Aoidobacteriales
- g : o__Bryobacteriales
- h : o__Thermoanaerobaculia
- i : o__Thermoanaerobaculiales
- j : o__Subgroup_22
- k : o__norank_o__Subgroup_22
- l : o__bacteriap25
- m : o__norank_c__bacteriap25
- n : o__Micrococcales
- o : o__Corynebacteriales
- p : o__Propionibacteriales
- q : o__Frankiales
- r : o__norank_c__Thermoleophilla
- s : o__Microtrichales
- t : o__IMCC26256
- u : o__MB-A2-108
- v : o__norank_c__MB-A2-108
- w : c__AD3
- x : o__norank_c__AD3
- y : o__Anaerolineae
- z : o__Anaerolineales
- a1 : o__Caldilineales
- b1 : o__Ardenticatenales
- c1 : c__KD4-96
- d1 : o__norank_c__KD4-96
- e1 : c__Ktedonobacteria

LEfSe Bar

■ sink

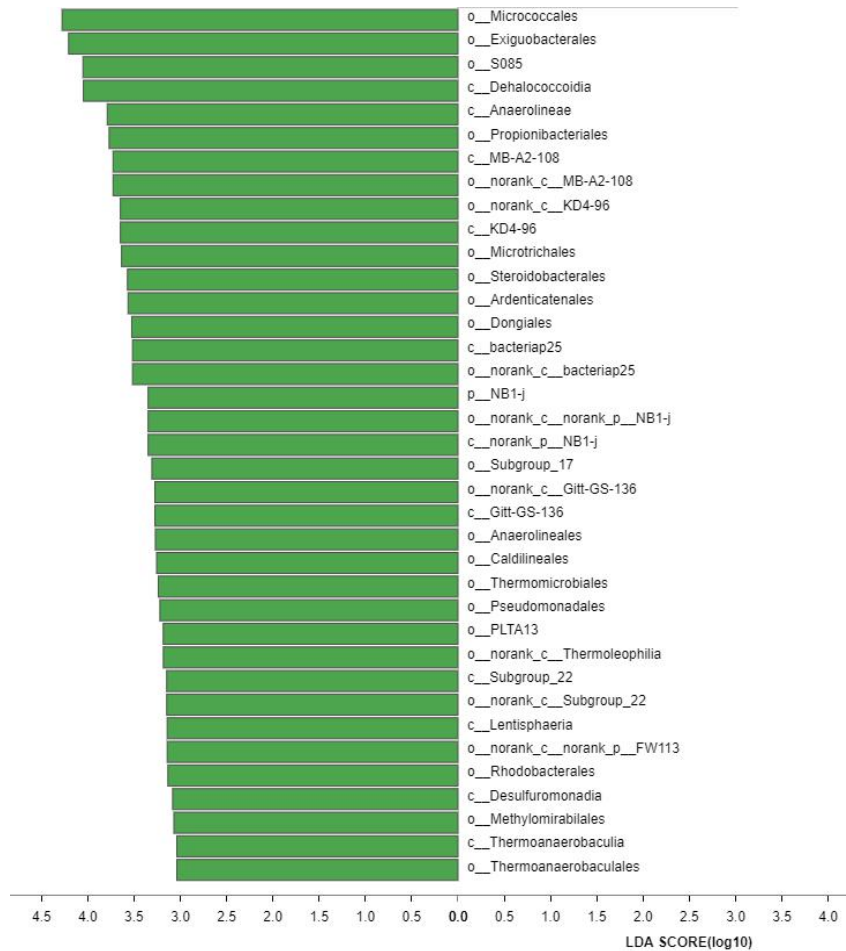


Figure S4 Cladogram indicating the phylogenetic distribution of microbial lineages significantly associated with the soil/sediments from sink (green) and source (red) sites, and highly differential taxonomy with LDA values greater than 3.